



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,106	05/29/2007	Jonathan Samuel Minden	060213CIPPCITUS	5110
7590	08/31/2009		EXAMINER	
Christine R Ethridge			FOSTER, CHRISTINE E	
Kirkpatrick & Lockhart Nicholson Graham				
Henry w Oliver Building			ART UNIT	PAPER NUMBER
535 Smithfield Street				1641
Pittsburgh, PA 15222-2312				
			MAIL DATE	DELIVERY MODE
			08/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,106	<b>Applicant(s)</b> MINDEN, JONATHAN SAMUEL
	<b>Examiner</b> Christine Foster	<b>Art Unit</b> 1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) \_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) 1-32 are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 6) <input type="checkbox"/> Other: _____  |
| Paper No(s)/Mail Date _____  |   |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-13 and 28-32, drawn to biomolecule capture devices.

Group II, claim(s) 14-22, drawn to a method of removing and recovering desired biomolecules from a solution.

Group III, claim(s) 23-27, drawn to a method of making a biomolecule capture device.

2. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

According to PCT Rule 13.2, unity of invention exists only when the shared same or corresponding technical feature is a contribution over the prior art.

The technical feature of claim 1 is that of a device featuring a maleic anhydride compound that is bound to a substrate having a surface, where the maleic anhydride compound binds to and releases from desired biomolecules with a half life of less than 1 hour. This technical feature is not a special technical feature as it does not make a contribution over the prior art in view of Charles et al. (U.S. 5,489,653, Applicant's Information Disclosure Statement of 11/21/2008) as evidenced by Sundberg et al. (US 5,624,711).

Charles et al. teach water-soluble compounds derived from a homopolymer or copolymer of maleic anhydride that can be used for immobilizing biological molecules (i.e., maleic anhydride biomolecule-binding compounds; see especially the abstract; column 2, lines 24-29; column 3, lines 1-30). The compounds can be indirectly bonded to a solid support (column 4, lines 12-21).

Charles et al. is silent as to whether the maleic anhydride biomolecule-binding compounds have a half-life of binding and release as recited in instant claim 1.

However, instant claim 6 indicates that suitable maleic anhydride biomolecule-binding compounds include dialkyl maleic anhydrides that comprise *dimethyl maleic anhydride*. Compounds taught by Charles et al. include poly(maleic anhydride-ethylene) (see column 3, lines 1-5, and the Examples). As evidenced by Sundberg et al., poly(maleic anhydride-ethylene) is a dialkyl maleic anhydride that comprises dimethylene maleic anhydride, in that the 2 and 3 positions of the maleic anhydride ring are attached to methylene groups (Figure 4).

It is noted that although instant claim 6 refers to dimethyl maleic anhydride, it is understood that this terminology would also encompass methylene groups that are formed when methylated maleic anhydride reacts with the substrate and/or with other intermediary molecules. See the instant specification at Figure 1, where it is apparent that upon reaction of an R1 group that is a methyl group, the resulting group must actually be methylene (or else it would be a 5-bond carbon).

Because Charles et al. also teaches a maleic anhydride biomolecule compound that comprises dimethyl maleic anhydride, which is the same dialkyl maleic anhydride recited instantly, the prior art product appears to be identical to the instantly claimed device and is

therefore presumed to possess the same properties (in this case, the same binding and release kinetics). See MPEP 2112.

For these reasons, the technical feature of Group I is not considered to represent a special technical feature as it does not make a contribution over the prior art.

Unity of invention is also lacking for the following reasons. Group III sets forth a method of making a biomolecule capture device in which a dialkyl maleic anhydride is *covalently* bound to a substrate. By contrast, Groups I-II refer to *indirectly* bound maleic anhydride compounds. Consequently, a lack unity of invention is also apparent because the technical feature linking Groups I-III is that of a device featuring a maleic anhydride compound that either covalently or indirectly bound to a substrate having a surface, which is taught by Charles et al. as discussed above above.

Accordingly, Groups I-III are not linked by the same or a corresponding special technical feature so as to form a single general inventive concept.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

***Notice of Possible Rejoinder***

3. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Art Unit: 1641

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Foster whose telephone number is (571) 272-8786. The examiner can normally be reached on M-F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on (571) 272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christine Foster/  
Examiner, Art Unit 1641